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EXECUTIVE AND PERSONNEL

MANAGEMENT

ON THE

NATIONAL FORESTS



A MEDIUM FOR THE EXCHANGE OF IDEAS AND
EXPERIENCES BY OPERATING EXECUTIVES
FOR THE BETTERMENT OF THE
SERVICE

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LAND-USE PLANNING ON NATIONAL FORESTS

(Preliminary Statement by Lands—L. F. K.)

The creation of national forests is an example of land-use planning in practice, consisting of the setting aside of areas of land for what is believed to be their highest use for the public welfare, watershed protection and/or timber production. Practically all of the Forest Service land plans—timber management plans, grazing unit plans, recreational area plans, primitive area plans, etc.—are forms of further land-use planning. Our land-use plans to date have emphasized the development of the natural resources of each National Forest area as their primary objective.

But to be wholly effective and worth while, land-use plans must be carried beyond that primary objective. The ultimate objective, the end result, towards which all plans should be directed, is the promotion of human welfare, the creation of conditions under which the people of the United States, to the limit of their ability and inclination, may attain maximum social security, economic independence, cultural progress and spiritual freedom. To those ends the opportunity for creative and constructive work must be made available to all who desire and need it. The second phase of land planning in its relation to National Forests is to translate the existing or probable natural resources into opportunities for employment, the support of homes, the bases of community life, the perpetuation of desirable social institutions, the foundations of an economic structure characterized by equity and individual opportunity. The potentialities of the National Forests for such types of planning are almost limitless.

For example, all the conditions requisite to the development of so-called farm-forest communities may be found on or near many National Forest areas. A small area of farming land where the residents can have 5 to 10 acres each to raise garden crops to supply their own food, plus an adjoining forest area to yield work for the residents of that community in the establishing, improving and harvesting of the national forest's many natural resources, may mean economic liberty for a hundred families and scores, if not hundreds, of such areas may be ripe for development. One of our jobs is to locate all such areas and initiate plans through which their potentialities eventually may be realized.

Each farm forest community will be a public benefit, due both to the low cost per resident of public expenditure for road, school and similar costs, and through the productive employment of many families now on relief rolls.

The National Forests have many areas which, under proper principles and plans of management, would assist materially in solving the National unemployment problem. The question as to how capably the Forest Service will redeem this job and responsibility and the extent to which its management of the National Forest areas will be guided by social objectives and designed to most fully promote the public welfare will depend on the individual and collective action by each and all Forest officers.

LAND-USE AND SOCIAL UTILIZATION PLANNING

By HOWARD HOPKINS, Region Seven

During the last few years land-use planning has become a password which all hear, many use and few understand. During the past few months social betterment through social land-use, or utilization, planning has become a popular news headline which all see, many read and few can define. Both of these subjects may be expected to be dominating forces in the shaping of the future policies and objectives of the Forest Service and the Nation. It is the job of each Forest Officer to know what land-use and social utilization planning is, what has been done on the project in the past, what is now being done, and what may be accomplished in the future through development of the physical and social aspects of land-use planning for the benefit of the future welfare of each local community and of the nation as a whole.

Definition

One definition of land-use and social utilization planning might be "Planning the use of land so as to obtain the maximum benefits for public welfare." The question will at once arise in the mind of forest officers as to how this differs from the definition of the present fundamental objective of the management of the National Forests, which is often stated, "For the greatest good to the greatest number in the long run." My answer to such a question would be that there is no difference between the two definitions, *provided* we are in accord as to what is the "maximum benefit to public welfare" or "greatest good to the most people." We recognize that the determination as to what is the greatest good to the greatest number of people is subject to various interpretations and fluctuations, but most of us do not recognize that the events of last year may necessitate an entire reorientation of our previous concepts of what can and should be done with National Forest areas, and to how much greater an extent than formerly dreamed of, the National Forest areas now can and should be utilized "to obtain the maximum benefit to public welfare."

Past Developments

Land-use planning on a national scale might be said to have officially started as a result of recommendations made by the national conference on land utilization held at Chicago in November, 1931. As a result of these recommendations the National Land-Use Planning Committee and the National Advisory and Legislative Committee on Land Use were appointed by the Secretary of Agriculture. Under the leadership of these committees several technical advisory committees were appointed to study various phases of land use. These committees assembled and evaluated pertinent data related to land use from a national standpoint. At the beginning of 1934, however, these committees were superseded by the newly appointed National Planning Board. The National Planning Board is now functioning both through itself and through regional and state planning boards appointed during the last few months. These land-use planning committees and boards have been and are largely fact-finding committees assembling data on physical land use and issuing

recommendations based on the facts as determined, dealing mainly with the proper utilization of our national resources for the benefit of the nation as a whole.

The social side of land-use planning was considered to some extent by the National Land-Use Planning Committee, but during the last year this work has been handled by the recently created Subsistence Homestead Division in the Department of Interior, and to some extent by the Surplus Relief Corporation and by the recent F. E. R. A. project. Thus, under present conditions, except for the Tennessee Valley Project, national land-use planning and social land-use planning are being handled by separate organizations.

The Forest Service, primarily through the Branch of Lands in the Washington Office, contributed to the national land-use planning work from the inception of the original National Land-Use Planning Committees. The National Plan for American Forestry included a large amount of regional land-use planning data. More detailed data by states on land-use planning, consisting primarily of map and areal information on natural forest areas of major watershed influence, most serious soil erosion and those natural forest areas submarginal for farm crop were collected by the Branch of Lands during the past winter. Social land utilization planning work by the Forest Service is largely of recent origin and consists mainly of a number of specific plans for farm-forest community developments which have already been submitted by 3 regions. In each case, it is of special interest to note that the careful analysis of the work available on the area to support permanent planned communities indicated a much larger volume of work than had been expected, and demonstrated that a careful survey and analysis of the many factors involved is absolutely necessary before a decision can be made as to the justified work available, or not available, on any given area.

Social land utilization planning, while still in its infancy in this country, has been tried for some years in other countries. A hasty review of past experiences in so-called subsistence homestead or community developments in other countries may be summed up by quoting a part of a letter recently received from the Director of a Forest Experiment Station which states:

"That land settlement, properly conceived and intelligently directed, can be a success is demonstrated by land settlement in Netherlands, Sweden, England, Australia, New Zealand, Russia and several other countries."

The same author continues: "In England, where this plan has recently been put into practice, and whose forest area is smaller than the forests of many of our smaller states, from 50-100 families have been established on a number of forest divisions to assist in tending the forests. Each family is given a small plot of ground, a cottage and other necessary buildings. They are guaranteed 150 working days of employment each year, and, as a matter of fact, are employed almost continuously when not engaged on their holdings."

Community development under planned land use is not to be compared

with the past land colonization schemes so many times tried in this country by lumber companies, land companies, and even public agencies, to sell land to settlers without proper land-use planning surveys or investigations.

Present Developments

Land-use and social utilization planning is now at a new high peak in this country. Whether it will continue to develop or will fail will depend largely on the leadership and support it is accorded by the public. Land-planning boards exist in every state, but many members, and even entire boards, are perplexed as to just what their function is and what they may do to aid the cause. In other words, the project on a national scale is looking for aid—for practical examples of applied land-use planning—looking for leaders who have investigated the job, determined what is needed in each locality, and who will be able to lead in accomplishing the desired objectives. Is the Forest Service prepared to answer the questions, grasp the opportunity offered, and undertake the biggest job on record—the establishing of a successful nation-wide example of land-use and social utilization planning and accomplishment, on national forest areas, that may be an inspiration and an education to the whole nation?

The Forest Service is constantly revising its physical land-use studies and is undertaking on specific areas more local studies combining the physical and social problems always present. From these studies we are beginning to acquire a reorientation of ideas as to the job on hand, its practical difficulties, and its possible tremendous value to the Service and to the nation as a whole. These land-use local planning and accomplishment projects cannot, however, be left to specialists. Every member of the Forest Service must be able, willing and anxious to formulate, develop and put into effect a land-use and social utilization plan for his district, his forest, his region.

The Regional Forester of one region which has made several project area studies of farm-forest community developments recently wrote: "I am convinced that at least 4 months' employment out of the year could be furnished for every 320 acres (of National Forest land). We are having a liberal education on this subject in connection with E. C. W. work.

On this basis, roughly, the ——— Forest alone could take care of 3,000 families, and, in my judgment, with a 10-acre plot of ground in a suitable location and four months of assured employment, a reasonable standard of living could be offered."

A Director of a Forest Experiment Station in a recent letter to the Forester stated:

"* * * on the basis of the few observations and the studies our station has made in this region I figure that for the area to be intensively managed 250 acres of land could afford part-time employment to one resident for the entire year for at least the next ten years. This does not include the harvesting of the crop, which in time will give employment to many more men. It merely includes the work attendant upon reasonable forest management. In England, when the work includes logging and utilization, they figure one man for every 35 acres."

Obviously, the figure of 35 acres, or the figure of 320 acres per resident will not be applicable to some of our Western forests, but have we investigated what could and should be done on these forests? Can we say nothing is needed, or how much is needed, without a thorough unprejudiced investigation? Let us hope no forest officer will say, "I know no additional justified work is available in my territory, so I do not even need a survey made." Certainly we cannot afford to refuse or delay the impartial thorough investigation as to what each area, if properly developed, may be able to offer to benefit the public welfare as a result of land-use and social utilization planning.

A report, recently approved by the Forester, on a proposed farm-forest community development in a National Forest was based on a gross work area of 134,440 acres and a net National Forest area of 107,600 acres which the report estimated will permanently support 75 families while utilizing only 75 per cent of the conservatively estimated necessary work to be carried on within the area, with the head of each family receiving 200 days of work annually. The entire area has been cut over, and from a work standpoint is not equal to the more attractive areas of comparative size available in each region.

Present National Condition

I believe it is agreed that the two fundamental conditions, obviously inter-related, which are the principal obstacles to relief from the present period of depression are, first, unemployment, and, secondly, the low price at which products are being sold, due to production being larger than consumption, which does not allow the average farmer and/or industrialist to make a satisfactory margin of profit between his costs and return.

There is roughly estimated to be six million people in the United States, exclusive of the usual number of chronically unemployed, out of employment. That is the number of those able and anxious to work who are not able to find employment that would provide a living wage for themselves and their dependents.

The overproduction caused primarily by a lack of sufficient buying power is, at least partly, an agricultural land-use problem. The facts in the present agricultural land situation may be stated as follows: The 1930 Agricultural Census gives the total land area of the United States as 1,903,216,640 acres, of which 986,771,016, or 51.8 per cent, is classed as potentially tillable. The total area in crops is given as 413,235,890 acres, with 109,159,914 acres of plowable pasture. A total of 522,394,804 acres, or 27.4 per cent, of the total land area is, therefore, improved, and capable of producing crops, with 72.6 per cent in permanent pastures, forests, desert, cities, etc.

The question as to a future need for a greater area of farm land to produce necessary food supplies may be answered by statements by Dr. O. E. Baker of the Bureau of Agricultural Economics that we could dispense with 28 per cent of the lowest income-producing farms with a resultant loss of but 3 per cent of the commercial farm product; and also his statement, "At present one-third of the farms of the United States produce three-fourths, if not seven-

eighths, of the food needed in the cities." A somewhat similar statement has been made by Professor J. S. Wehrwein, "fifty per cent of our present number of farmers on scientifically organized farms of the proper size could maintain our present exports and produce all of the agricultural products needed in the United States at prices which would permit the farmer to enjoy adequate income. Very little more farm land would be needed to take care of the additional population increase predicated for the next twenty-five or thirty years, when the stationary level will be reached."

Thus a partial picture can be obtained of two present-day conditions that must be remedied. First, a vast number of people able to work, looking for work and not able to find it; and secondly, a vast area of land not needed for cities, or for the production of agricultural crops to maintain our present and expected future population.

Present Job

It is obviously impossible to solve the present unemployment situation by only one solution; it will take many varied and integrated solutions, but one important solution in which the Forest Service may and should play a vital part is to put some portion of the land not needed for industrial or farm crop use to such use as will permit a greater number of families to obtain from such area a satisfactory standard of living for the benefit of the public welfare. If such use or work can be developed on many areas it will allow an appreciable decrease in the number of unemployed and an increase in the buying power of the country as a whole.

The Forest Service is responsible for the handling of approximately 145,000,000 acres of land in the continental United States, forming over 7½ per cent of our total land area. Hence, we have a very real responsibility to undertake a full investigation as to what extent this area can be made to provide permanent profitable employment for those at present unemployed. After determination of these opportunities we should then take such action, as our limitations permit, which has been indicated by the investigation as desirable and necessary for the maximum benefit to the public welfare.

A very natural reaction of forest officers after reading the preceding discussion may be, "Well, no need of an investigation in my district (forest) (region), because I know I am already utilizing all of the justified work." How many of us correctly estimated the number of men that could be employed on justified work, or, in other words, the amount of justified work to be done, in each area by the ECW, NIRA, CWA and other emergency funds used to advantage this winter? Did we have a true realization of the work to be done as we imagined we did, and do we now have a correct estimate of the work which can be developed on each area? Have we really made a careful analysis of the situation, examining *all* of the facts, as is necessary, before we are in a position to be able to make the correct decision?

Before we are able to make an analysis of the situation in regard to possible work to be done in each area we may need to reorient our ideas on the

primary function of the National Forests. The statement of the primary objective in handling the National Forest areas to obtain "the greatest good to the greatest number in the long run" is usually interpreted to mean, to produce over an indicated period of time the maximum volume and/or value of timber from the timber-producing area; to produce the greatest value of livestock with maintenance of maximum range capacity; to produce maximum opportunities for use by the public of our recreational areas at minimum cost, etc. We all realize that these objectives are and should be subject to change as conditions and national objectives change. These changes usually occur so gradually that we imbibe them into our objectives and actions without hardly conscious thought. At this time, however, our nation has made a drastic change in its objective to promote the public welfare that involves a new and determined effort to develop worth-while employment. What change does or may this cause in our objectives?

Let us suppose, for example, that a declaration of our main objective was changed to state, "To handle the National Forests so as to provide the maximum amount of employment which will yield maximum public benefits to the nation in the long run," and that the handling of our timber, grazing, special uses, recreation and other resources was made to conform to the maximum accomplishment of this main objective.

Such an objective opens up a world of new possibilities on each ranger district and forest. For instance, recent estimates have indicated that there are over 6,000,000 acres within National Forest areas in the category of "most serious erosion." A large part of this undoubtedly should be worked over, and the cost of necessary dams and planting to remedy the eroding areas would be money well spent, with many families employed on a worth-while job. Handling of the trapping on a sustained yield basis under a license system as started on a few forests might provide other thousands with work. Inauguration of a local licensed guide system on forests rich in hunting and fishing resources would enable many others to obtain worth-while permanent employment. Cultural and range improvement work, not to speak of disease and insect eradication work, have already partially opened up employment vistas not previously fully realized. Planting, seed sowing, permanent fire protection, and all forms of improvement work are other only partially developed employment opportunities. Handling of timber sales or other resources so as to furnish each family in a given location with enough work and cash income from sale of logs, or other forest or forage products, to maintain each family as a community asset has opportunities as yet scarcely scratched. No attempt is being made to give a complete list of opportunities in the many lines of work available, but rather I am only offering a few suggestions which should set each one's own mind probing for similar and other opportunities on his own area.

There are two main questions which will at once arise when one considers the above suggestions. One is, "Does this signify a return to our June 11 homestead deluge?" and the other, "Where are the funds to start and maintain these undertakings coming from?"

The answer to the first question is decidedly "No." The establishment of residences under homestead laws was not in accord with present ideas as to proper planned development of the areas occupied.

One of the reasons for the recent high taxes and uneconomic use of lands is due to the scattered settlers living in many parts of the country, due to the homestead laws. These settlers in many cases are a heavy drain on the county in which they live and a detriment rather than a benefit to the public welfare. In other words, they cost the public more than they contribute, and hence are a net loss. For example, Professor Wehrwein states: "In the towns with isolated residences, schools are usually small and the annual cost of educating a child may reach \$375 per year, compared to \$40 per year in the better farming area, where 30 to 40 children are enrolled in a school."

A regional forester recently sent out a letter temporarily refusing all applications for agricultural special use permits, as he stated it would be most unfortunate to allow such settlement, which might not be in accord with the planned development and use of each area concerned. In other words, settlement if done will be done only under a planned arrangement where, as far as can be foreseen, it will be provided so that each settler and community will contribute rather than be a net loss to each area which the individual and/or community occupies.

The second question can best be answered by quoting from a recent letter by the Forester:

"I am anxious to have each one of the Regional Foresters explore the situation within and adjacent to the national forests with the purpose in mind of seeing how the forests can be integrated into this picture of general relief. It is a project in which the President himself is vitally interested. It is a project which means we might in the future have to tie in our estimates for appropriations sufficient amounts to cover cultural operations in our forests in order to make the general program effective."

The Forester, if I understand him correctly, uses the words "cultural operations" to indicate any development or land-use work which would more than return the expenditure in later public benefits. In other words, if we can present a clear picture of what we can offer to aid employment, through the establishment of permanent communities or development of permanent justified work for groups of families, the Forester will request the necessary funds to put justified plans into action.

Another paragraph in the Forester's letter is of interest in this same connection:

"At a meeting in the Secretary's office a few days ago with the Administrator of Federal Relief Funds, the startling statement was made that there are over 600,000 families in the United States already on the land that are at poverty levels below those of the worst peasants of Europe. He specifically mentioned in bringing out this fact that it was expected that the National

Forests would be a contributing factor in rural rehabilitation in the United States. I want to see that the National Forests do play their part in the readjustments that must be made to take care of both our rural and excess industrial populations who are now on relief rolls. The new F. E. R. A. program substituted for CWA is founded on the theory that a great many of these people with a little assistance can become self-supporting by cultivating small areas for their own food supplies, finding their cash income through some decentralization of industry, work in the forests, handicrafts, or the like."

What is proposed is the development and/or maintenance of small communities where the residents will have 5 to 10 acres each to raise their own garden produce, keep a few chickens, pigs, or cows, and in addition gain a cash income of not less than \$300 per year, usually a minimum of 3 months' work, from part-time labor in other work. This development coincides ideally in many ways with what many ranger districts and forests have to offer, and if the work opportunities on each area are properly investigated and developed innumerable potential financially justified jobs will be made available, which if utilized will greatly benefit the welfare of the local residents and communities.

Conclusion

Before the Forest Service will be able to understand, accept and put into practice land-use and social utilization plans for the immense area under its supervision it is essential that each member of the Service revise his ideas based on past policies and practices of land use, and investigate, understand, and endorse the new concept of land-use and social utilization planning and practice. Let us refer to our definition of land-use and utilization planning, previously mentioned, and give a concrete example of the past and present interpretation of the application of this definition.

Consider again the area, previously mentioned, which was recently reported on for a proposed farm-forest community work area, having a gross area of 134,000 acres of cutover hardwood and pine cover types. A year or more ago our answer to the question as to the maximum use of this area for the public benefit would be relatively simple: to grow a crop of timber as fast as possible, as the most beneficial land use, and the employment of one ranger, with possibly a part-time guard and a strictly temporary fire and improvement crew as the maximum possible social utilization of the area.

Now, however, a careful analysis of this area, from a land-use and social utilization viewpoint, has resulted in a detailed plan, approved by the Forester, indicating that this area can justify the permanent employment of 100 families, of which 75 are recommended for immediate employment in a planned permanent community. On the physical side we can now see timber production as a primary, but still only one of the many, allied resources to be found and developed on almost every National Forest area.

The concrete example has been used as one illustration of the difference between the old and new definition of planned land use, "for the greatest good

to the greatest number in the long run." The justified permanent employment for 75 to 100 families, instead of only temporary employment for an improvement crew. Considering the condition of the nation today, could any change in our development plans and policy be more worth while our best thoughts and efforts? Such a report on one small area opens a vision as to what may be done if we tackle the problem on each area from the standpoint of an impartial investigator who wants to determine how each area may be developed to obtain the maximum benefit to the public, keeping in mind the proposed new service objective.

It is obvious that in most cases each family given permanent employment in a farm-forest community will lessen the public relief cost. No farm-forest development is expected to produce agricultural crops for sale on the open market and hence no farm-forest community will add to the present overproduction of agricultural crops. The cash wages obtained by each family will swell the purchasing power of the community and local area. Each family which moves from an isolated location to a planned community will tend to decrease the cost of local government and local taxes. The effect of the farm-forest communities as a whole will be to decrease the number of the Nation's unemployed workers, to decrease the present excessive costs of local government and to increase the productive capacity and the annual production of the natural resources of our forest areas to the material benefit of the present and future public welfare.

It is readily admitted that many details of the farm-forest communities and land-use development by such communities are yet to be worked out. There will be many inside the service, and more outside, who will refuse to even impartially investigate the opportunities, land-use and social utilization planning offers to the Forest Service. Just how much the Forest Service will be able to accomplish through land-use and social utilization planning for its own and the Nation's welfare may depend on how many in the Forest Service will make an impartial analysis of the facts, an honest investigation as to the job to be done, and will then tackle the job, regardless of anticipated difficulties, or present work loads, and carry it through to a successful finish.

The opportunity is here, the job to accomplish the desired objective faces each of us, whether we will tackle the job and accomplish the desired objective will depend on the individual effort each one is willing and able to make—for the benefit to the future welfare of the Forest Service and of the Nation.

REVIEWS

Making the Best Use of Wisconsin Land Through Zoning: Published by the Agriculture Extension Service, University of Wisconsin, Madison.

"Idle land, like idle men, weighs heavily on the resources of the community, the county and the state."—S. L. Christensen, Dean and Director.

"Up to the present time the two most extensive functions of local governments have been concerned with schools and roads. The third important function will be the control and regulation of land . . . we shall consider land a public utility, thus making it controllable in the public interest."—R. B. Goodman, Chairman Wisconsin Conservation Commission.

"For nearly seventy-five years the Federal Government has promoted land settlement, with little concern as to the fitness of the land and no concern as to the fitness of the settler. Zoning is a reversal of this policy."—Asher Hobson, Wisconsin College of Agriculture.

These three quotations give the general idea. It begins with the expense to the community of scattered, isolated settlers, but with study and analysis other social phases of the question are developed and the idea grows. The depression caused many counties to analyze their finances. Some found that they were maintaining roads and schools for isolated settlers at an expense greater than the gross value of the settlers' crops. It would have been cheaper to buy them out and move them out. Only they had no authority to do that. What authority did they have?

In looking around for the answer to this question they hit upon the zoning idea. Zoning is in almost universal use in cities, and has been for years. It had been tested in the courts, so it was safe, that is if the same idea applied. It is a function of the "police power" in protecting the public health, safety or general welfare.

As such, zoning is a form of public control over the use of property, public and private, in the interest of the general welfare. It usually has for its purpose either one or the other of the following:

1. Control and suppression of uses of land or buildings which have a ruinous effect on established property values in the immediate vicinity.
2. Control or suppression of uses of land or buildings which would result in wasteful expenditure of the tax money paid by other taxpayers in the same taxing unit.

The first purpose is the more common one in cities, and the second in the counties or rural communities. The courts have insisted on two things: First, that the restrictions must be reasonable, and second, that zoning cannot prevent the continuation of existing uses without due compensation.

The Wisconsin law makes the county the unit for rural zoning. It provides that "the county board of any county may by ordinance regulate, restrict, and determine the areas within which agriculture, forestry, and recreation may be

conducted, the location of roads, schools . . ." In doing this the county must create specific districts; these districts must be identified with certain uses. Changes are permitted in order to make the zoning responsive to new developments.

The above quotation gives the three zones so far used—forest, recreation, and unrestricted. The forestry district is most restricted. Even here, however, many uses are permitted. Using Vilas county as an example, eleven permitted uses are enumerated. These include all the common uses of forest or wild land, such as sawmills, summer homes, trappers' cabins, power plants, harvesting wild crops, etc. All forms of farming and year-long residences are not included. All are seasonal uses except those in connection with forest products and power.

In the recreation zone, or district, the uses are the same except that family dwellings are permitted. One may live in the recreational zone, but may not farm. And no schools are provided.

In both zones the settlers now there may remain, but schools and roads are not provided. Also, they have an exchange law by which the county may exchange land with the settler if he is willing to trade. This has proved of considerable value in consolidating settlements. The counties that are zoning their land are mostly in the northern part of the state, where forest land predominates.

While in every case county zoning has been initiated as a means of controlling expenditures, the idea is growing that it has almost equal value in promoting the best use of land. Studies show that with six pupils or less the cost of rural schools may be as high as \$300 per pupil, while with from 30 to 40 pupils the average cost is \$40. For roads, the studies show much the same discrepancy in the cost per ton mile of transportation use. These are the two big savings, but they are by no means all. Another very considerable one is in fire protection. Scattered settlers burning brush is still an important fire hazard.

The value in promoting the best use of land is more difficult to analyze or to express in dollars. In fact, it is difficult as yet to foresee just what the effect will be. For one thing, the zone stabilizes our thinking as well as the use. The fact that land is set aside as forest land enhances that use. Forest land is becoming of more value as forest land. Protection is better and better planned. The chief difference seems to come from the change in our thinking. The county zones it as forest land. This calls attention to the forest as a land use. People begin to think of it as such, and as a result begin to see in it values that they had not seen before. The forest as a recognized, legitimate and value-producing land use is decidedly growing.

Much the same thing applies to the recreation zone. The designation enhances its value. It calls attention to its natural values. This creates public interest and promotes both use and improvement. It insures to the recreation seeker a quiet, beautiful, undisturbed area. It insures to the owner stability of use. From the two comes the creation of taxable property—summer homes,

resorts, etc., the chief interest of the county. All in all county zoning in Wisconsin seems to have been a decided success so far and is spreading to new counties. Whether it will find a place in the better agricultural counties yet remains to be seen.

Planning for the Use of the Land: By Arthur E. Morgan, Director of the Tennessee Valley Authority. Published in the Survey Graphic for March.

"The material foundation for all living is the land. We live on it and travel over it. From it comes our food, the clothes we wear, the houses we live in, the metals we use. We work on the land and play on the land. Land planning and land use are the basis of human economy."

In spite of these facts, which we all know in our minds but seldom recognize in our acts, the land, a very large part of it, continues to be mistreated, wasted and misused. For example, the Federal Government planned a large dam to impound the waters of French Broad River. A year or two later federal officials approved the construction of a million-dollar bridge above the damsite. In a few years the bridge will be under water. The plans were not correlated, and the million was largely wasted.

It is not just federal officials that make these wasteful mistakes. Near by a private utility firm spent some six or seven million dollars in the construction of a dam, then abandoned it and built another and higher dam down stream. The first structure is completely submerged. Both cases involved some planning, but inadequate, uncorrelated planning. Under our system such mistakes occur continually, and the cost of the mistakes must be added to the cost of the product. Society, not the individual, pays. The standard of land-use planning of any people reflects rather closely its standard of living.

For example, at the time Columbus came to America the Indian population had very probably reached its saturation point. For their degree of planning, and they did considerable, the country could support no greater population without reduced standards of living; and even among the Indians the best planners lived best. The Algonquins were half starved, dwarfed, and suffering from rickets, while the Cherokees were better fed, better developed, and had better buildings. They were better planners.

The same country today supports 250 times as many people. We do that much better planning. But we have reached or passed the saturation point. As shown above, our planning is wasteful. We not only waste our products and our labor, we have wasted the resource itself—the soil. And what are we going to do about it? Either we are going to learn to plan better or we must accept permanently a lower standard of living. Many of our nationally known industrial leaders believe that standards of living are too high, that wages must come down, and that the mass of the people must revert to the status of peasants. This is probably true for present planning standards.

The Tennessee Valley project is an experiment in better planning. Land-

use planning is the foundation for its social and economic program. No effort is being made to produce suddenly a plan of land use for the Valley as a whole. Problems will be faced and handled as they arise, and gradually methods and policies with broad application will be developed.

"Land-use planning consists of three essentials. First is the intelligence, experience and imagination to create a picture or a vision of what is possible or desirable." The second essential is the collection and organization of facts, and third the application and adjustment of ideas to meet particular cases.

A good map is an expression of facts in an orderly organized manner, so the Tennessee Valley Authority, in co-operation with other federal agencies, is mapping the valley. The first step is a network of levels and horizontal controls, and next a system of airplane photographs. With the basic mapping done the water-control program can be planned. Then will follow other programs, such as erosion control. What part of the land is suited for cultivation, what for pasture, and what should revert to forest. The water-control program and the agricultural land will largely control settlement. With these facts established, communication and transportation systems can be planned. Settlement and transportation will determine the location of industries. For it is the development of urban-rural or rural-urban areas that will be attempted, where people can largely get their own food from the soil and their other needs from industry in relatively small units.

Getting down to details, land-use planning makes possible the effective planning of cities, the location of parks and the planning of highways so that they will realize the beauty and convenience of the territory.

"Land-use planning is not an end in itself. It is simply a process of collecting the essential facts concerning the lay of the land, its soil, minerals, forests, and water resources; and then the guidance of developments to prevent waste and to make the national resources most fully serve the people of the region. Properly used, it may change a wasteful, conflicting and haphazard growth into a program by which those things which happen add to the prospect for achieving prosperity, and help to create a pleasant and beautiful environment."

Subsistence Homesteads: President Roosevelt's New Land and Population Policy, by Ralph Borsodi, in the January Survey Graphic.

Dr. Borsodi begins his article with a quotation from Governor Roosevelt, 1932, which includes the following:

"Are we not beginning now to visualize a different kind of city? Are we not beginning to envisage the possibility of a lower cost of living by having a greater percentage of our population living a little closer to the source of supply? . . .

"I am wondering if out of this regional planning we are not going to be in a position to take the bull by the horns in the immediate future and adopt

some kind of experimental work based on a distribution of population."

Soon after Governor Roosevelt became President, Congress established the machinery whereby the experiments in better living and redistribution could be tried out. A section of the National Industrial Recovery Act included the following:

"To provide for aiding the redistribution of the overbalance of population in industrial centers, \$25,000,000 is hereby made available to the President, to be used by him . . . for making loans for and otherwise aiding in the purchase of subsistence homesteads."

To people of the West who are familiar with the old national homestead act the term homestead is misleading. The old homestead was not just a home, but was an economic industrial unit for engaging in commercial agriculture. It is not the intention that the new homestead will contribute anything to commercial farming or add anything to the already all too large surplus of farm products. The homestead will consist of an acre or so, enough but not more than is needed for producing the family food supply.

Neither is the subsistence homestead the same as "subsistence farming." In the latter the farmer tries to gain a living from the farm; in the former the homesteader works in some outside industry or profession to supplement the home income. It is the intention to raise as much as possible of the family food supply, but no more. The cash income will come from outside labor.

Dr. Borsodi uses the first Dayton, Ohio, homestead unit as an example of the homestead idea. All are not organized exactly as this one is, but the essential features are the same—"a family on a plot of land where it can grow most of its food and make many of its goods, plus a part-time job for cash income." Dayton, a manufacturing city of 200,000, plans to so homestead 2,000 families, or about 5 per cent of her population.

This first unit was really well started when the homestead law was passed. Back in 1931 "production units" were established by a Division in the Welfare Department of Dayton. These units produced what they could, and established a system of barter. But not much could be done in the city, so a farm of 160 acres was purchased. Then the Homestead Division in the NRA was established, and the Unit at Dayton was able to secure funds with which to proceed with their plans, but plans modified to fit the new requirements.

The Homestead Unit was incorporated as a membership corporation, with membership limited to homesteaders. It has a finance committee. The unit borrowed from the federal homestead division \$50,000 for purchase of land, tractors, building material, etc. On this loan it pays 4 per cent. In turn it lends money to homesteaders for 5½ per cent. These loans run for from one to fifteen years, with payments weekly or monthly. A member can borrow up to \$1,000.

These loans cover building material, farm implements, equipment, live-

stock, seeds, and such things as are actually needed and cannot be produced. The borrower does not receive the cash, but a pass book. Through the use of checks he pays for his materials. This insures that the loans are used as intended.

The loans cover nothing for land or for construction costs. The Unit retains ownership of the land, and each homesteader does his own construction. Since no one man is skilled in all forms of construction work, this is accomplished through a system for exchanging labor. In selecting the homesteaders, men with different skills, carpenters, plumbers, masons, etc., are included. After construction the man owns the house. He is in debt only for the cost of the material. The Unit still owns the land. If a homesteader leaves he may sell to anyone eligible for membership, or if he fails to find a buyer he is paid on an appraised valuation. He cannot hold a plot indefinitely without use.

The 160 acres, owned in this case, was divided into thirty-five 3-acre plots. The remaining fifty-five acres was reserved for a community pasture, woodlot and recreation park. The old farm buildings were repaired and are retained for community uses. Each member has his three acres, his home, and shares in the use of the community buildings and shops.

Some of the advantages of system are: It gives a great deal of individual freedom, individual homes and individual use of each homestead. It provides also for as much collective activity as the group chooses to carry on. It places the emphasis on family life, independence, and the production of basic necessities, and tends to bind the family together rather than separate it. It develops a sense of permanence, security and confidence never attained by the rent-paying workers in the city. The community use of machinery eliminates much of the drudgery of rural pioneering. The unit is within commuting distance, and members secure work in the city.

Dr. Borsodi says that the most difficult problem is that of inspiring and training families, for this is essentially a family movement. They must not only learn new ways of securing the necessities of life, they must learn new satisfactions and new notions as to what constitutes the good life. Their greatest difficulty is in learning to depend on and enjoy their own self-expressive, creative activities, and not to think too much about or depend too much upon the cash income. Measured by our old cash-producing standards the movement is not a success and families cannot remain contented.

Then, too, there is the problem of evaluating the whole nation-wide movement. What effect will this method of living have on purchasing power? Will industry find in these commuting homesteaders a cheaper source of labor? What effect will it have on the work of the AAA in trying to rehabilitate commercial farming? What influence will it have on our centralized industrial system? Will it tend toward decentralization? Will it develop into a permanent system of living, or will it pass with the depression—if and when it passes? Dr. Borsodi believes that the NRA and the AAA must necessarily fail and that this movement will eventually involve large numbers, such large

numbers that its influence will be felt both industrially and socially, but it is too early yet to foresee just what that influence will be.



PLANNING, RELIEF AND SUBSISTENCE HOMESTEADS ON THE NATIONAL FORESTS

I have collected for you in this number some material on land-use planning, zoning and homesteading. These are all new ideas or movements, that is, new as they are now being talked. They are nation-wide in their scope, and occupy an unusual amount of space in our nation's literature.

What is it back of all of them? Why do we think so much about "subsistence" now when only the other day we were worrying about the two-car garage? What do these movements mean to us? Are they related, and if so, how can they be correlated? And how do you classify them—relief, recovery, or reform?

At the Grazing Conference next November it is proposed to discuss these and other trends in their relation to range use. This discussion naturally involves all other uses, since the only thing new in land planning is relativity.

It is not that I am trying to anticipate the meeting—I know too little about the subject to discuss it. But it is within the scope of our discussions, so I am bringing it up. It involves issues that have got to be faced by field men, and you individually have little time for study. Co-operatively you may inform each other.

Of course, superficially it is the depression that has brought these matters to the front. That is, we call it a "depression," but in reality it is much more. The situation involves a breakdown of a system. In his recent radio talk the President told us that we are in for a long, hard pull, and that major reforms were necessary. In his discussion, "America Must Choose," our Secretary has told us some of the "why" of things and some of the reforms needed. But the main thing for us to consider here is that both believe there can be no quick recovery.

Here are some of the factors of the situation that must be taken into account: There are still some eight or ten million unemployed. Industry is beginning to establish itself at the present low level. This means not recovery but readjustment. Of our forty-five million workers, thirty-five million can produce all the goods and materials for which there is a market. There is no prospect whatever of finding full-time work for all.

Our rural population has become impoverished. A recent report shows 600,000 rural families so impoverished that their living standards are below those of the peasants of central Europe. In our cities millions are still on relief, and the difficulties of raising relief funds grow. About four million have reached employment age since 1929, and few of these have found permanent employment. Technological improvement continues to decrease the

need for men.

As to our Western forests, where the range is and has been our greatest asset, the stock industry is completely ruined, and never can recover on the old basis. Not only has the market for its products decreased, but the retirement of fifty million acres of cultivated land is going to greatly augment the production of forage in the East, and with cheap forage the East can produce beef cheaper than the ranchers on our Western ranges. The old-time cattle business is gone forever. It must be recreated on a new basis. Then, too, the subsistence homesteaders will produce their own meat. If this movement continues to grow, in another year the market will have further shrunk by some two or three million pounds per day.

Our great difficulty is in our habits of thought. While we know that men are out of work through no fault of their own, we continue to treat them as though they were defectives or criminals, and destroy in them their self-respect by forcing them to accept charity. While we know that there is not work enough for all, we continue to honor the man who deprives his fellows by working long hours. While we know that it is circulating money that promotes industry, we continue to preach thrift and saving. So it is that we will have difficulty in adjusting ourselves and our forests to the new situation.

Mr Kneipp says that our resource plans emphasize the resource and its development; that the next step is to go beyond the resource to its relation to human welfare. Does this mean that we will change, or should be willing to change, any of our old plans or methods? Will we, for example, change our methods in the sale of timber? It will be relatively easy to do new jobs, such as thinnings, if new money is available, but the extent to which we adapt the old to the new need will be the real test of our ability.

And what should be our objective in this new move? Hopkins emphasizes our old "greatest good to the greatest number" objective. I always have believed that worthless because too general. For example, we were all inspired by that thirty years ago when we were dotting our maps with June eleven claims, backing the "rights" of the new Class A grazing applicant, and promoting free use and other privileges to the isolated settler. Now we know that these things do not promote the permanent welfare of the greatest number; that it is better for people to live in communities, and that individual tendencies need to be restrained. Hence, we will now, I believe, throw in with the zoning movement and reverse some of our earlier actions.

Mr. Kneipp also mentions "social security and economic independence." Certainly they are to be desired, but I wonder if now is the time for us to concern ourselves much about them. I prefer not to think of "subsistence homesteads" or anything else on the subsistence level as being permanent or the type of security we are after. I am wondering if a form of indirect relief should not be our aim. In the President's radio talk on June 28 he said: "It (relief) calls for large expenditures, and will continue in modified form to do so for a long time to come." Notice the "modified form" and the "long time

to come." The possibilities in modified form go far beyond the mere spending of money for erosion control and other forms of new work. Mr. Kneipp mentions work in "establishing, improving and *harvesting*" forest crops.

But to come back to the subject: The nation still has several million unemployed. Also it owns 160 million acres, or so, of forest land. How can the one be made to relieve or support the other? That isn't it exactly, either, since the forests are now contributing to the support of 86 thousand families or laborers in addition to those under appointment. How can this number be increased?

While considering help for the individual we must not forget the community. In other words, we should consider the zoning idea, which means that we should encourage forest users to live in communities and discourage isolated settlers. This would change a number of our minor policies and the instructions that go with them. In grazing, for example, in addition to our dependency zone outside, would we not have a settlement zone inside somewhat after the Wisconsin idea? This would restrict our old Class A idea. Should we also restrict at the other extreme, the large owner? In the more recent past we have tended toward favoring the large owner. Our argument has been that production by large owners was more economic. We favored a stable, profitable industry. Now if we favor subsistence for the greatest possible number it will probably cause changes in the privileges granted large owners.

In wild-life production there is also considerable opportunity. The first thing I would suggest is to definitely remove the more important fur-bearing animals, such as beaver and muskrat, from the "game" status and proceed with their production on a crop basis of income to be used in relief. Game also in places can be made to contribute to local communities, but in other places there is not the demand. Possibly the demand will develop. One thing is certain, that where there is a demand for game we can greatly increase the supply by increasing the production of game feed. Particularly can we give attention to this in connection with planting and thinning. Why destroy good game on the assumption that a few cords of wood fifty years from now are of more value than game right now? At a game conference not so long ago one region was accused of doing that very thing. A supervisor in another Region, accused of destroying game range, defended himself by calling the game enthusiasts names. He seemingly overlooked entirely a very valuable present crop in his enthusiasm for a future crop. Also our planting men have been accused of planting the good huckleberry patches first because easy to work. Berries are not only good game food, but good human food as well. It would be hard to justify a decision in favor of the future while so many of us are at the subsistence level in the present. In planting, by a judicious spacing of openings and cover, game can be increased and the future recreational value increased. A dense unbroken woodland has just one value—wood.

The harvesting of our forest crop will also have to be considered. This harvest now contributes largely to the 86,000 previously mentioned. Can we,

through some other system, make it contribute more? Our objective has been, as stated in the Manual, "to grow the largest and best crop possible." That is, our attention has been centered on the crop. If we now put the social need of caring for the unemployed first, can we make it contribute more? Also, we have been thinking more about fifty years from now than now. Is not the present crisis greater than what may reasonably be expected fifty years from now? Should we not concentrate on the next ten years and its needs and be more concerned with crops that can be produced and harvested in that time? Planning for the distant future has its place, but chiefly not in times of current stress. This applies also to spending money for "cultural improvements" instead of doles. The chief difference between the two is the more favorable reaction of the individual to the work than to the dole. The fact that the one may produce a return some time is relatively of little importance. The big thing is getting through the present transition period and coming out with the fewest possible scars.

As to subsistence homesteads organized under and financed by the Subsistence Homestead Division, there should be quite a number of places where this can be worked, but in general our work will be with established communities, with people already on the land or close to it. The problems differ in the East and the West. In each, for different reasons, whole communities will have to be helped or moved, or in some way readjusted. Whole states, even, will have to be readjusted to a new basis. There will be, and is, intense local feeling and prejudice, the pull of old ideas and old ways against the necessity for new.

In this crisis, I am wondering if it will not be necessary for the Supervisor to break away from old inhibitions and old methods and plan for his Forest on an entirely new basis. In the past he has made "resource" plans, which in reality were Branch plans made for and approved independently by Branches. The Supervisor was supposed to correlate these. What I am thinking of is different. It starts with a brand new objective—one objective, not a bunch of Branch objectives. It considers first the present—crops for today, if needed, will have priority over assumed future needs. People will be considered above the resource and subsistence, for the many will have priority over desired standards of living.

Further, such a plan cannot be just a forest plan; it must go outside the forest and plan for a community or a Region.

Since this upsets so many of our old ideas, it will be hard to do it and keep our balance. The tendency will be to throw over everything. But our ideals in organization and efficiency and standards need not be sacrificed. The job is more difficult than anything we have previously attempted. We need, as never before, informed, unprejudiced, clear-thinking, fearless leaders. And, well, anyhow, who else has as many of that type as we?

Summary

I wonder if the situation cannot be briefly stated as follows:

The owners of the forests are now up against a condition calling for large sums for relief and a readjustment of land use on a big scale.

This shifts their interest from maximum production to maximum social values.

The problem becomes, then, one of using the forests in relief and readjustment.

The readjustment period will continue for years.

The grazing resource is most affected in the West—since so many established communities are dependent upon it in whole or in part.

The Service must correlate conflicting demands, keeping uppermost the social, not the resource, objective. For example, to take the forests entirely out of livestock production would help to solve a national problem of production but would create so many local social problems that they, in turn, would become national.

Any work that produces future values is better than direct relief, but work that requires no appreciation should be given first consideration.

Work beyond the relief standard (generally accepted as about \$300) ceases to contribute to relief, and must be judged on a purely economic basis.

This requires nice discrimination in judgment and the most careful planning possible.

The Forest Service personnel is better prepared by both training and background for this type of planning than that of any other organization.—P. K.

SUGGESTIONS FOR DISCUSSIONS

Since I am out of touch with the extent to which the land-use planning movement has progressed, I scarcely know what to suggest, so am leaving the subject pretty much open. There have been, and probably will be for years, large sums appropriated for relief. The amount never has been, and never will be, enough to take care of all who are in need. This gives us the problem of reaching as many as we can. Then, too, there is the problem and the opportunity of helping direct the course of events toward some stable and desirable permanent base. We don't want living standards to be crystallized at too low a level. And "land use" should not become permanently associated in our minds with expenditures on the land instead of returns from it.

1. What should be our attitude toward the zoning idea? Does it apply in the West, or do conditions there make isolated settlers necessary for the highest development of resources?

2. It has been suggested that the Service should harvest its wood crop—do its own logging—in order to give work to greater numbers. Is this desirable? How could it be made to increase the number benefited by the harvesting process? It would not make more work if we do it as efficiently as it is now being done, but possibly it could be more widely distributed. What are its advantages or disadvantages?

3. Other ways that the Forest can be of use in relief.

4. How would permanent communities or established industries be affected?

5. How can the forage crop be used to promote relief, or subsistence homesteads?

6. What permanent changes, if any, do you expect in the range-stock industry of the West as a result of the present emergency and its adjustments?

May we have your discussion by September 30?—P. K.

DISCUSSIONS OF LESSONS 26 AND 27

I have included the discussions received for both the last two lessons in game management. If others are received, they will be published in our next number, which we hope to get to you before the Grazing conference.

I have practically no comment to make on the papers submitted. They show a keen appreciation of the relation of feed to game, and the necessity for planning game, not just big game, on the basis of food supply, or carrying capacity of the area for the least favorable season. This, in most places, is the late winter season. If numbers are to be correlated with feed, there must be some method of controlling numbers. To control numbers there must be in force some form of limited licenses; it cannot be done by limiting the length of the hunting season. There must be some method whereby you can take 50 deer from one unit range and 30 from another. With an open season, hunters going where they choose, the actual take may be just the reverse. If so, that would result in one unit being overgrazed and the herd depleted on the other. This is not management. But that is what is actually happening. By some means it must be stopped.

Management of fur production must be controlled on the same basis. Permits should never be issued for unlimited trapping, but each permit should specify the number to be taken. Only in this way can fur be produced on a crop basis.

In many areas, as yet the demand for hunting is not great enough to take care of the natural game increase. In such cases nature attempts to effect the necessary correlation through starvation or predators. If we leave it to starvation we deplete the range at its weakest point. Therefore, I prefer predators. Whether we see it or not, a very large number of all forms of wild life must be destroyed each year. Otherwise the species itself becomes too numerous and destructive.—P. K.

H. R. HUGHES

MEDICINE BOW

CENTENNIAL, WYOMING

Administration of wild life offers the best of opportunities in relation to furnishing the subsistence homesteader with a part-time profitable and interesting occupation. The duties that could be well delegated to these occupants are many. Game census on defined areas, recording migrations, observations of wild life, photographing wild life, trapping surplus fur-bearing animals, rearing game birds to transplant size, introducing them to natural areas, serving as game warden and in many other capacities are among the jobs that should be done by these employees. Without the subsistence homesteader local residents will have to be interested, trained and employed. The plan is going to provide for jobs to be done. The manager cannot do them, nor will his assistants be able to. Their time will be taken up by intensive planning and supervision. Part-time employees are going to be very necessary to do the jobs that can best be done by residents living in or near to game areas.

To determine the personnel needed to administer our game lands we must

first break up the Forests and marginal lands into game units. I define a game unit as being an area comprising the annual range of the number of animals it is deemed possible for one game manager to adequately supervise. A National Forest may be one game unit, perhaps more than one or less. The fact that it is a Forest does not necessarily mean that it is a logical area for one specialist to manage. Each unit will have a basic game product, fur product, game-bird product and predator. That is, the area will be better adapted to and have more of one species than any other. The census figures of the basic animals can be used to determine the number of personnel needed to efficiently administer the units. As units are built up to full stocking capacity they can be subdivided and personnel added. On the east side of this Forest we estimate there are about 2,000 head of deer, our basic game animal. Managing the game resources does not seem to me to be a great deal different than managing a large ranch, and with properly trained assistants I believe one manager should be able to supervise an area containing 5,000 deer. Consequently this unit would include a sufficient portion of the Forest on the south necessary to complete the desired area. . . . I think the manager should have from 2 to 4 assistants. Each assistant to be in charge of a determined sub-unit and the sub-unit in turn to be directly administered and cared for by subsistence homesteaders or other employees from local rolls. On the plains drainage of the Bow there are twelve streams draining from 12 to 20 sections of Forest land each. The marginal land of each one could well support a subsistence homesteader. The wild life occupying the land drained by the streams could furnish income and unlimited occupation to the tenant. However, I do not believe the tenant's income should be direct from the sale of furs or game products. Rather an annual salary based on the returns received by the government from work done should be computed and allowed. A particular stream I have in mind is five miles in length within the Forest, and drains about 13 sections of Forest land. The stream and bottom land will support about 35 families of beaver and the usual attendant number of muskrats and various other fur-bearing animals. The grazing land, in connection with marginal winter range, will support 50 head of deer. From the beaver ponds the tenant can annually harvest 50 to 60 adult beaver and probably four times as many muskrats. A few non-basic fur-bearing animals, such as mink and marten, could also be trapped. With fur prices at present low levels a cash income of \$150 to \$200 could be derived from the sale of these furs. The income from the sale of licenses to hunt the annual take of deer and game birds could be credited to the tenant's area. Additional income could be secured from the trapping of predators and badger on the marginal land occupied by the tenant. Under intensive management this particular area should yield to the government an annual income of over \$400. The tenant in charge would have to spend at least one-fourth of his entire year doing jobs as instructed by the game manager. He should probably receive fifty per cent of the gross income from his area in the form of an annual salary for his services. Where subsistence homesteaders are not available, ranchers or other local residents can be recruited and trained.

I believe the manager of a game unit should be a trained biologist and

wild-life enthusiast, a forester and also a practical woodsman. Educated and adaptable personnel should serve for assistants to the manager. Sufficient training along needed lines can be given at the start of the job. For the tenants a vocational course could be devised to meet the situations peculiar to the various localities. The game assistants can be trained at a regional school and the tenants individually or in small groups, if practicable.

Co-operation of the State and other agencies can be secured by the game manager. Favorable state legislation to eliminate political barriers will be necessary. Securing this co-operation, legislation and launching a public educational program will be the most important of the first jobs to be done. Public interest in the welfare of wild life is at present fairly well aroused. Most newspaper readers are aware that action along management lines is being taken in scattered sections of the country. However, to the average person the whys and wherefores of game legislation and what we plan to do about it still remains under a considerable cloud. We need to formulate an educational program that will tell the public in an interesting manner about the wild life we have, what we plan along management lines, the purpose of management, and exactly the things we expect to accomplish by it. The pivotal points around which to center this material cannot well be selected until it is decided exactly what we are going to do and the methods we will use. Both general and local opposition, when policies are formulated, can be anticipated, and the pivotal points should be those necessary to meet and disprove antagonistic propaganda that is sure to develop.

We need to use the best and most forceful methods available to reach the public. The game and wild-life problem should be played up until it is rescued from its accustomed place in the obscure columns of the newspapers and placed on the front page. The radio should be utilized to the fullest extent possible. News reels offer a great opportunity to present educational programs showing current events of wild-life work. I think we can largely forget about the habitual readers of sport and wild-life publications. They will become informed through the routine news gathering of the editors. We should, I believe, have a skillful author prepare articles for popular publications that do not ordinarily contain such material but are read by a class of people it is helpful to reach. Publicity should point out the advantage of public ownership of game lands and the objective of raising wild life as a crop that will be managed to pay the cost of production. Experiments will undoubtedly be necessary to determine the most feasible method of reimbursing the land owner for his share of these to the attention of the public.

The basis of our first management plans will be the present wild-life population. The question of whether our present census figures are good enough for a beginning or not is rather important. If we accept them and they prove mostly erroneous serious errors will be made. I recall a question at training school regarding the accuracy and method of making a wild-life census for the annual report. The answer was that, although there was no established system, the ranger was on the ground and should know more about the wild life and

numbers of them than anyone else. I think it has been generally conceded that fairly accurate results could be obtained by persistent observations during a lengthened sojourn in one region. I wonder if the occupation of the average ranger district has not been too transitory for it to be definitely stated that we have a good enough census to begin with. Too, we have to consider the human element. Seeing game, or any wild life, is a knack, a talent, and not easily acquired. Our census figures probably contain many errors due to no other reason than inability to accurately read signs of wild life or see game in its home environment. If a technique has been developed to mechanically estimate the population of areas, I think we should use it and check our present figures, providing, of course, that the cost is within reason.

G. E. MITCHELL

SISKIYOU

GRANTS PASS, OREGON

Now that the Forest Service may be called upon to take over the management of game in some places, their greatest problem is that of winter range. Approximately 90 per cent of winter range for large game is outside the forests and not under forest control. If we concede that winter range is the limiting factor of carrying capacity—and I think it is—then there is no doubt but what my first statement is true.

Just what to do about it is still unsolved. Regulated use of the Public Domain will be a big step; the revesting of marginal lands in Government ownership will add to our control, but we will still have large areas in private ownership which, if properly managed, would aid materially in increasing game range.

Successful game management must have the backing of public opinion; to get this we must depend upon and work through Chambers of Commerce, service clubs, and any other mediums of moulders of public opinion.

There is no secret about the effect of settlement on our large game. Before the settlers occupied the lower and open lands of the valleys, game had a balanced range, that is, both summer and winter feed. But with settlement, the winter range has been either occupied or overgrazed until the game is required to winter on higher ground and under conditions of deep snow, poor protection, and scant feed. I believe the loss from starvation and predators far exceeds the kill by hunters, and even poachers.

At one station where I worked a steep mountain with north exposure rose abruptly from the canyon. The slope was partly open and supported a good stand of grass and pine grass western wheat. It was too steep for domestic stock to graze comfortably, and was protected by drift fences. During the winter snow would often accumulate to depths of two to four feet. Deer always wintered on this slope. As the snow became too deep for continuous travel, deer would work onto this slope and paw for grass. They would stay there all winter, and moved only as they pawed away the snow. They were at the mercy of cougars, and when a slight crust condition existed were attacked by coyotes, in addition to increased efforts in pawing. Under such conditions losses are

enormous, and spring fawning was materially affected by the weakness of does. Before settlement the deer could winter in the open valleys, find plenty of feed, and protect themselves from enemies.

Much of the land that has been settled is far more valuable for home making than for game range. And where these homes and spring ranges exist it would seem useless to try to re-establish large game on higher ranges which are dependent on the low range for winter feed. The rancher can use that high range in summer and feed his stock in winter.

But where there are places which will supply, or can be made to supply, both summer and winter feed, and which have been depleted of game through poaching, fire or what have you, then it would seem reasonable to re-establish a species suitable to that range and provide management to prevent a recurrence of the depletion factors.

We will have to have more data on recreational and related values before we can set up a management plan that will call for a reduction of domestic stock, owned by established and bona fide ranchers, to make more room for game.

On the other hand, we are stocking some ranges with domestic stock that we should not—experimenting, in other words, to see if we can run a few more cattle or another band of sheep. This is detrimental both to the stockman and game resource. My impression is that most of our ranges are overstocked. True, this is a hard thing to determine, but the ranges with which I am familiar are changing from what they formerly were in both appearance and use. It is true that use, which in this case becomes environment, changes percentages of plants because appetites of domestic stock or game are epicurean. But our natural tendency is to increase the returns, number of stock or business of our district, forest or region, and this tendency has led from crowding to destructive use in many places.

I would say, then, that our first step in game management is to reconsider our range: decide which is most valuable for chiefly game use and which for domestic use; then readjust our carrying capacities to a safe number, leaning toward understocking rather than overstocking. There is bound to be some common use between stock and game, but we can't depend too much on this for the continuance of either stock or game. Their difference in appetite is bound to affect the desirable forage plants.

I am not in sympathy with the idea of protecting or preserving our predatory animals. With the increase in population and the limits of game range, I don't see why we should keep predators. We can't keep them from eating game, and why worry about game management to feed predators?

Dixon's finding of a large percentage of rodents in coyote stomachs was a result of supply rather than choice. Not long ago I read where some one or two thousand coyote stomachs had been analyzed by the Biological Survey, and about seventy per cent of them contained meat of game birds and game animals. The coyote is an animal that can adapt himself to conditions—if mice

are the chief source of food, he gets mice, but if quail or deer fawn are abundant he eats those. Bear like berries and eat them, and ants also, but they will go a long ways for a sheep or a calf. Eagles are inspiring to look at, but they kill more grouse, and sometimes deer, than any one hundred hunters in the country.

Rabbits and rodents can be controlled much easier and at less cost than coyotes. In spite of all the control and money spent, coyotes are extending their range, and they adapt themselves beautifully to civilization.

The cougar is a destructive animal, and from a hunting or aesthetic standpoint is almost a total loss. Good authority states that a cougar will kill at least 35 deer a year where they can be found. We don't know just what deer are worth, but if they are worth \$50 to a community, then it costs that community just \$1,750 a year to keep one cougar. Few of our most prized domestic animals are worth that.

I think this business of preserving predators should be quickly and decidedly dealt with. We don't need them any more than a sheep man needs scabies in his flocks, or a hog grower needs cholera in his pens. If we allow the idea to grow among sentimentalists it will retard the job of building up a game supply just that much.

J. V. LEIGHOU

GUNNISON

GUNNISON, COLORADO

The local problem of game management centers largely around that of game-law enforcement, at least at the present time.

We have some isolated areas that are rather heavily stocked with game, but in general the stocking is much below the desired number, and has not reached the point where overgrazing is a problem from a game standpoint except as to winter range. If wild life is to be given equal importance with other activities, it is going to mean the reduction in the amount of spring and fall range available for domestic stock. Some of this, however, must come in any event, and, I might say, the majority of it.

While there is a large amount of poaching on game animals, the more serious depletion of numbers is confined to the fur-bearing group. There is an ample supply of game animals to take care of necessary stocking if a reasonable compliance with the game laws is secured. The same is, however, not always true of the fur-bearing group. Predatory animals are, of course, taking their toll, but the number killed by predatory animals is not as serious a factor as the illegal killing that is done out of season by man. With the present type of State administration of game laws, I can see very little possibility of putting game under management on the National Forests unless we also assume the burden of law enforcement.

Any reduction in the amount of grazing by domestic livestock, particularly at the present time, is going to be met by the local stockmen with resistance. However, as stated above, considerable amount of this reduction is going to be

necessary in any event. The conflict between domestic stock and game insofar as the Forest is concerned is between cattle and game rather than between sheep and game. The overgrazed areas or the ones needing reduction are the bottom lands and open park areas, which are not greatly used by game but are used by cattle. Sheep grazing is almost entirely on the summer range of game animals and not on the winter range, and there is an abundance of summer game range. Cattle grazing, on the other hand, also includes the winter range as well as the summer. This is, of course, not true of the areas outside of the Forest which are winter game ranges. Here there is a very definite conflict between sheep and game. In my opinion, however, the benefits to be derived are in favor of the game. That is, a small reduction in the amount of domestic stock grazing will allow for a large increase in the number of game animals, and I believe that a larger benefit would be derived by the local communities by such action. Insofar as the local community is concerned, there is a large profit in catering to the recreationists and sportsmen.

There is, I believe, room for both domestic stock and game. In fact, by restricting the periods which domestic stock are on the range, the same number of livestock can be run as at present, and because of the large surplus of hay which is at present produced, it would be possible to hold the stock on the ranches rather than to utilize the lower Forest ranges.

I believe that control of predatory animals should be continued and, if anything, intensified. The number of predators present is still excessive, and their toll, particularly on smaller game animals, is heavy.

CYRIL S. ROBINSON

SANTA BARBARA

SANTA BARBARA, CALIFORNIA

In certain national forests in Region 5 the recreational use is second in importance. The term "recreational use" is used vaguely, but I believe it should embrace everything that does not fall under a specific use permit for which a fee is paid. With this definition in mind I can proceed.

On the Santa Barbara watershed protection is paramount, and fire prevention and suppression our first duty. With these facts there is no argument. It is therefore obvious that the dominant vegetative types are considered primarily as to what they contribute to a protective cover. We have no stands of conifers in sufficiently pure stands to make timber production possible. Our climax types, where undisturbed, are of a character that affords excellent diversified forage and can be designated "edge types."

Hunting is a recreational activity. Hunting and fishing are, in my opinion, the important part of the recreational program. Deer hunters are the largest single unit in the army of visitors that invade this forest each summer. This fact is self-evident here and undoubtedly the case with 75 per cent of the national forests in this region. Fishermen are not numerous on this forest.

I have made these statements to show how vital it is that fish and game products be so handled, and that we base our recreational policies and plans with this understanding of the human interest.

A word about men needed to carry on the work. I do not know how many are necessary, but in this region several forests with similar type characteristics and problems identical could be grouped and handled a while by one man. Men with a dependable background will require training in methods of new procedure, and this can be taken up as plans are established. Please let those of us who have always had a keen interest in fish and game problems play a real part in future work.

To repeat what I have said so often—*food* is fundamental to any management plan. It is sincerely hoped that this coming convention in game protection will not bring forth any plan procedure that does not place this factor first to be considered.

A word about predators. I am not at all sure that they are even an important item in this and other southern forests. I have seen hundreds of deer on the California Forest yarding up, yet skeletons were few. So often starvation during late winter and early spring kills many deer and predatory animals are held responsible. Again, where the deer population is dense and natural loss through old age would account for normal loss, the report shows up as blaming "predatory animals for the decrease." We seem to expect deer to live forever, and forget death by natural causes comes as inevitably to game animals as to humans. I believe that in this region as a whole starvation during winter and spring, and hunting, are the principal causes of losses, not predators.

I believe that the present system of licensed trapping is fundamentally unsound. Whole drainage systems in this semi-arid country can be cleaned out in a very short time, and because a man is smart enough to outwit a marten or mink is no reason he should be continually permitted to trap until it becomes unprofitable. The lures or scents is an abomination, unthinkable in conservation work, except in the case of proven predatory animals whose removal is imperative, yet it is common practice with trappers. Personally I get almost as much of a kick out of seeing a coyote or a bear as I do a deer, and there are many who do likewise.

ANSWERS TO QUESTIONS ON PAGE 15, BULLETIN NO. 26,

APRIL 13, 1934

Refuges offer excellent reservoirs for game production when created with the fundamental principles of feed, shelter and water first in mind. Properly spaced, fairly small refuges have stood the test. Others created because of local opinion, or because the area was not considered of any value except for game (and this has often happened) have failed to measure up to the purpose for which they were set aside.

Large estates or ranches where all hunting is prohibited have helped tremendously in certain localities in Southern California to maintain the game population.

I

To quote Supervisor Nash-Boulden, the new wild-life regulations and their attendant publicity "are loaded with dynamite." Regulation G-20A is heartily welcome, but we all realize that it means care in handling our diplomatic relationship with the local public and other co-operating agencies.

On this forest we have made it a point to discuss with the newspapermen and members of sportsmen's associations what Regulation G-20A is for, stressing the fact that it will enable us to try out on our own ground, in our own way, such management plans as may be deemed necessary. It is believed that the regulations will supplement the game supply eventually, rather than restrict its use. My opinion is that we have been successful in maintaining friendly co-operation all around, and also have awakened public interest.

II

Restriction of grazing of domestic livestock is advisable only where the type of country is eminently suitable to the class of game or wild life to be favored. To restrict cattle and horses in a park-like country where 80 per cent of the feed is grasses and weeds is absurd, and contrary to proper co-ordinate use. On the other hand, sheep or goats should be removed from National Forest range where the composition of the vegetative cover is suited to use by deer, or where this type of country is limited. Forage requirements of deer for most parts of Region may be summarized as: browse, 70 per cent; grasses and grasslike plants, 15 per cent, and weeds, 15 per cent.

Restriction will not materially affect community development; in fact, it may aid in reducing some of the "starvation acre" type of settlers which are common on forest boundaries in the region.

III

The matter of predatory control is, and should be, a part of any game management. In this locality mountain lions and coyotes are closely hunted, and provide a means of livelihood to a few natives. Unquestionably lion kill has increased deer population, but has also changed the rodent situation from normal to increase. I do not feel that the coyote or mountain lion offer a serious menace at this time. Naturally, local associations favor extermination of all predators. as it means more deer to shoot.

Wish we could classify trappers of small fur bearers as predatory animals!